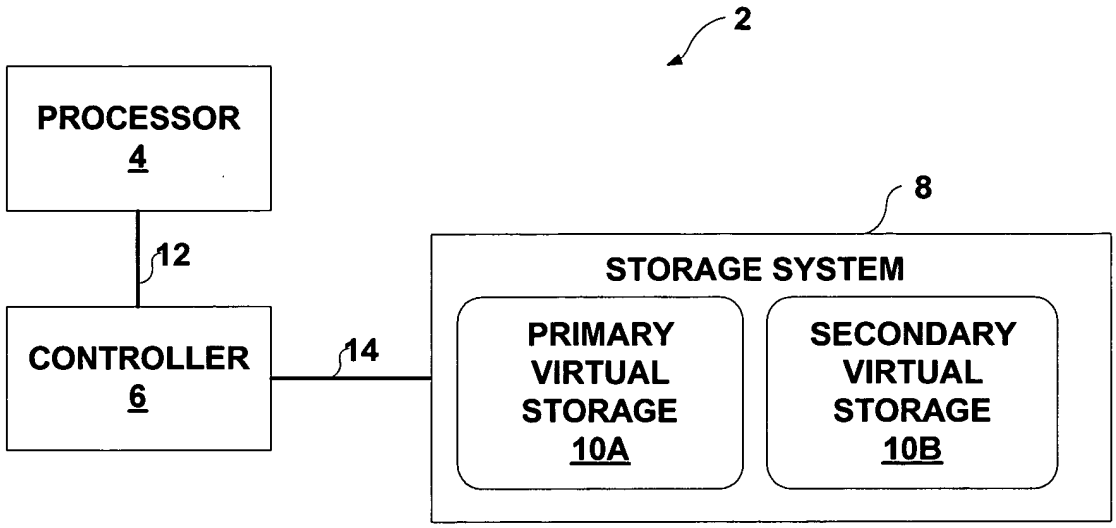
2
PROCESSOR
4
8
12
STORAGE SYSTEM
CONTROLLER
6
14
PRIMARY
VIRTUAL
STORAGE
10A
SECONDARY
VIRTUAL
STORAGE
10B

FIG. 1

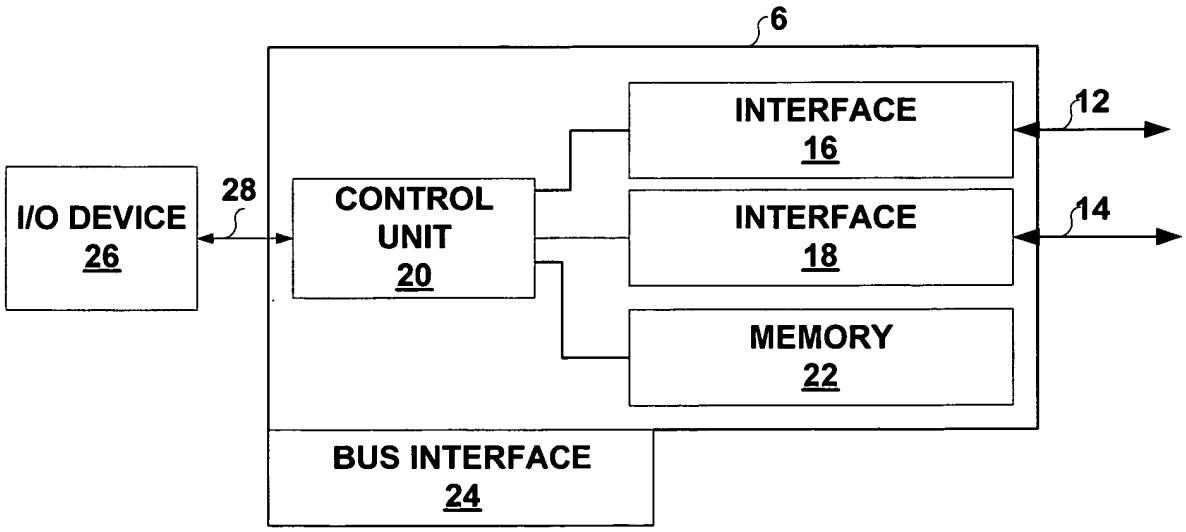
6
INTERFACE
16
12
I/O DEVICE
26
28
CONTROL
UNIT
20
INTERFACE
18
14
MEMORY
22
BUS INTERFACE
24

FIG. 2

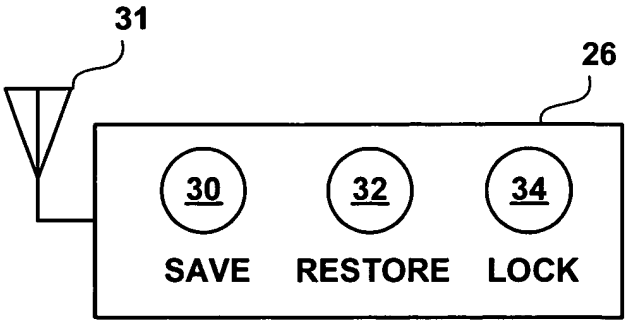

FIG. 3A

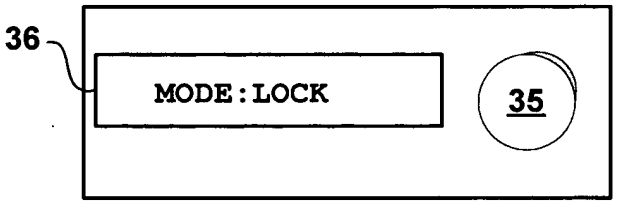

FIG. 3B

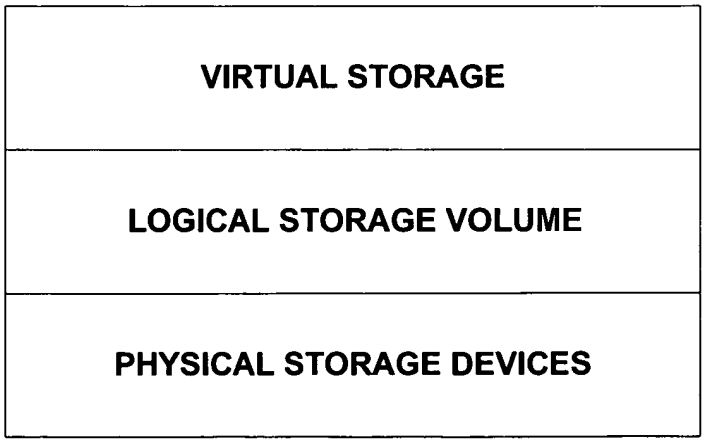

FIG. 4

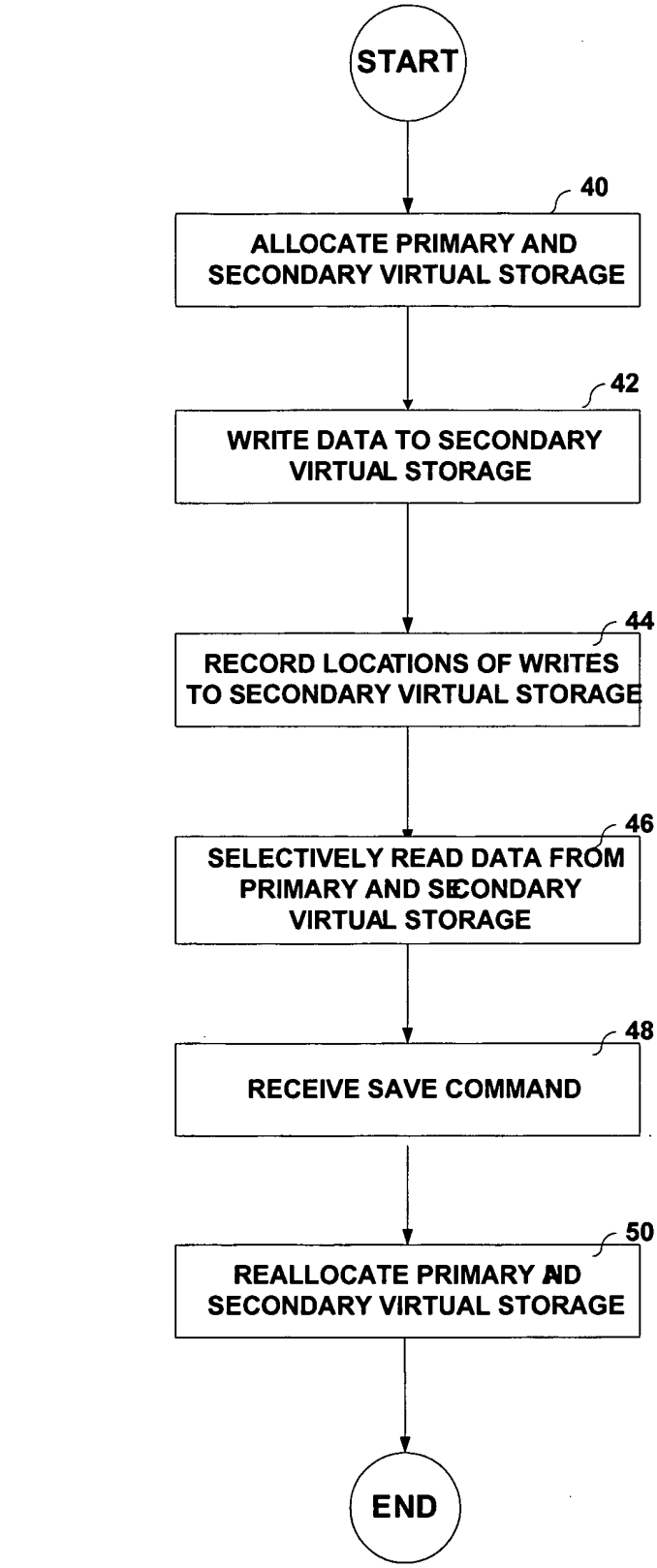

FIG. 5

Attorney Docket No. 1009-003US01

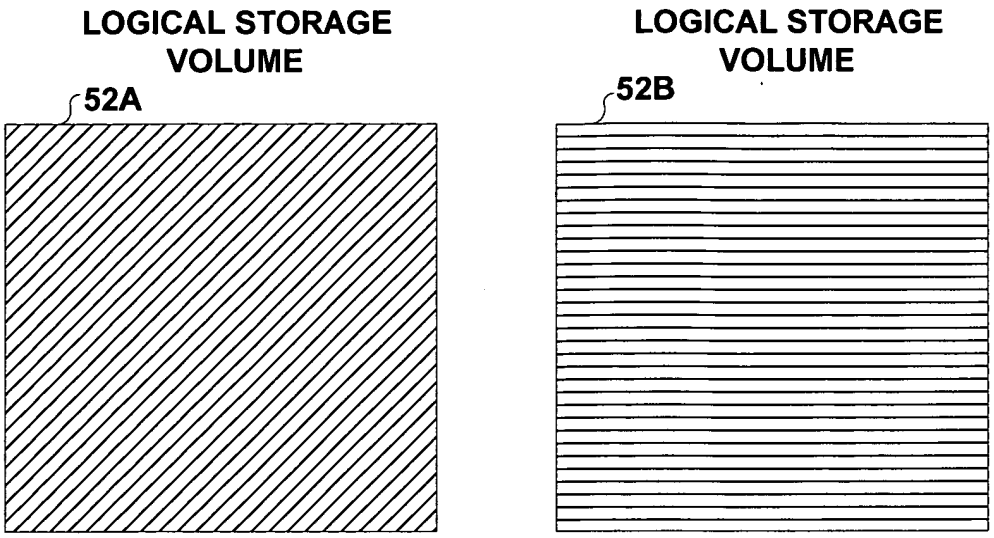

FIG. 6A

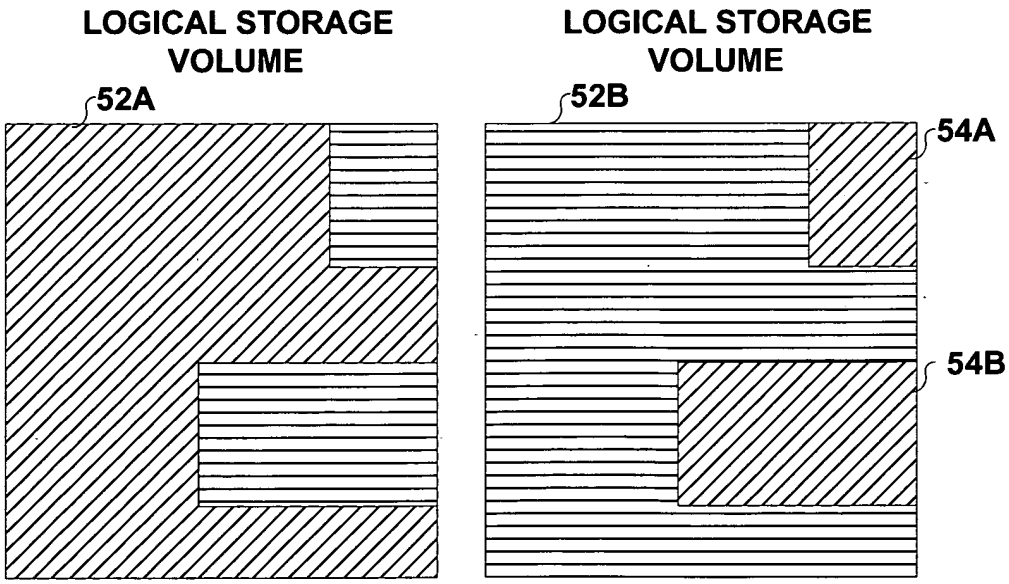

FIG. 6B

Express Mail Label No. EV 040 924 074

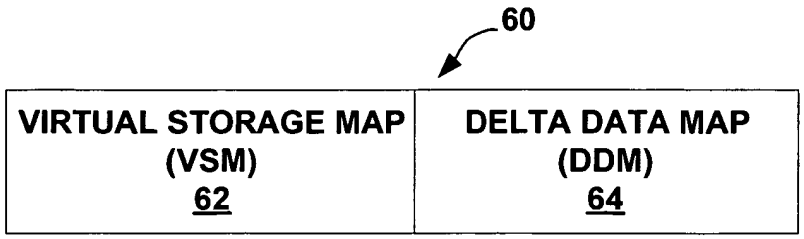

FIG. 7

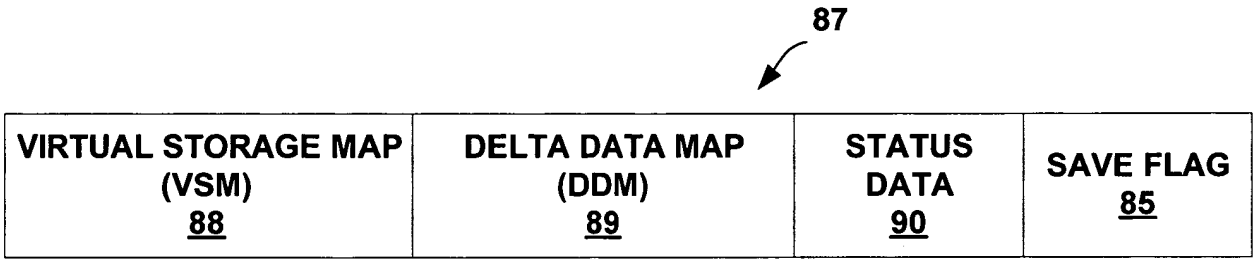

FIG. 10

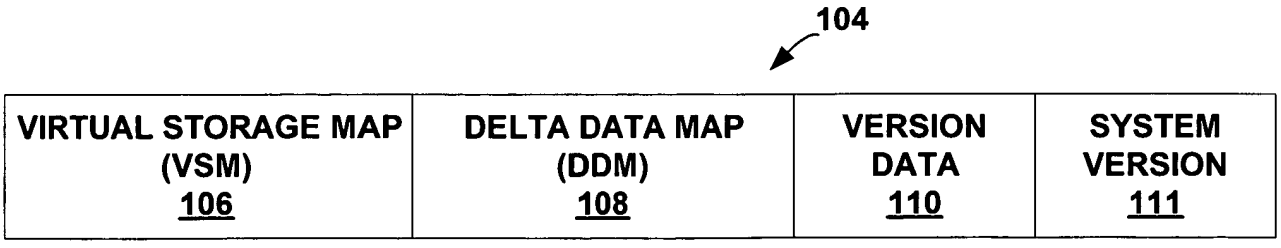

FIG. 12

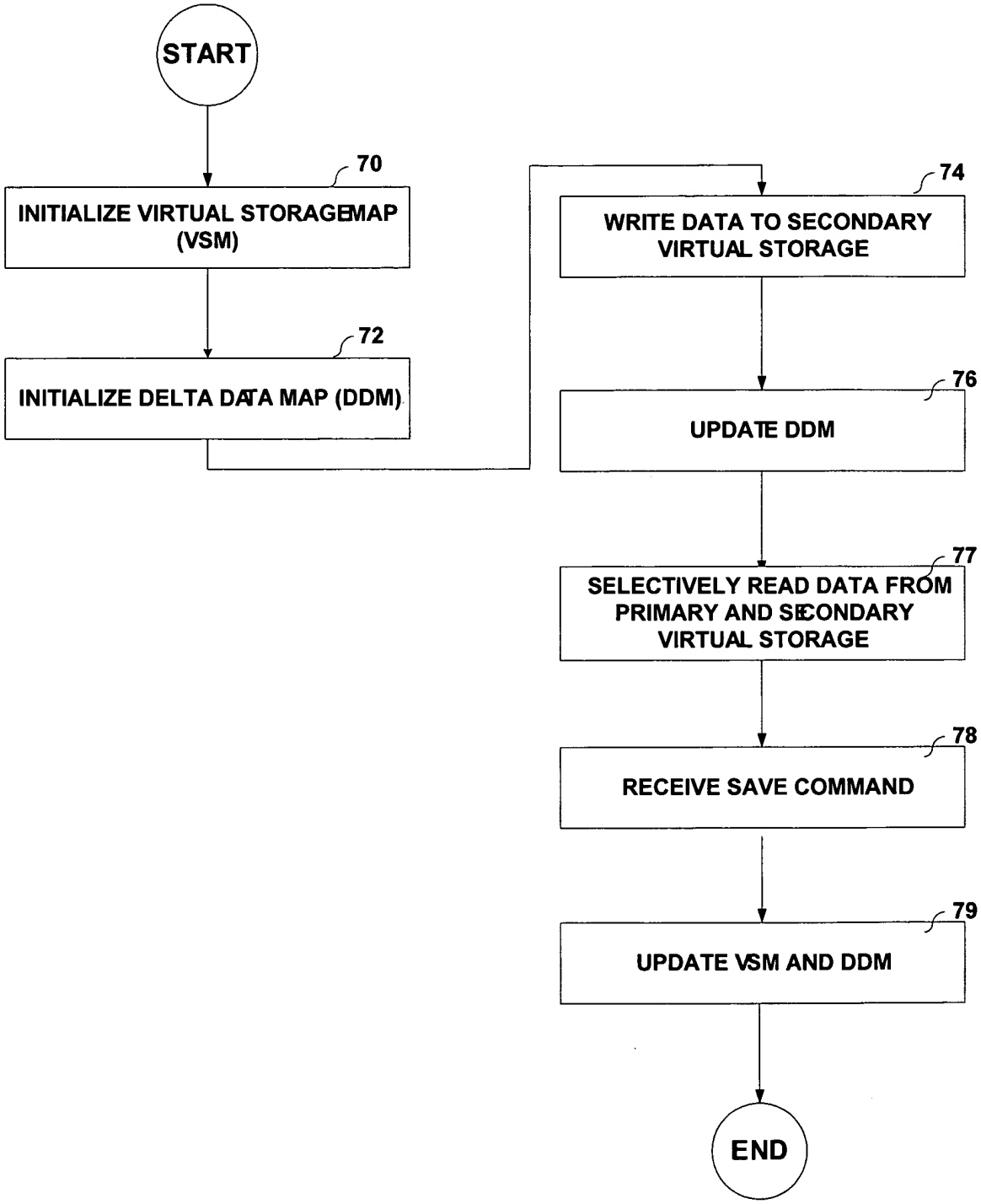
START
70
INITIALIZE VIRTUAL STORAGE MAP (VSM)
72
INITIALIZE DELTA DATA MAP (DDM)
74
WRITE DATA TO SECONDARY VIRTUAL STORAGE
76
UPDATE DDM
77
SELECTIVELY READ DATA FROM PRIMARY AND SECONDARY VIRTUAL STORAGE
78
RECEIVE SAVE COMMAND
79
UPDATE VSM AND DDM
END

FIG. 8

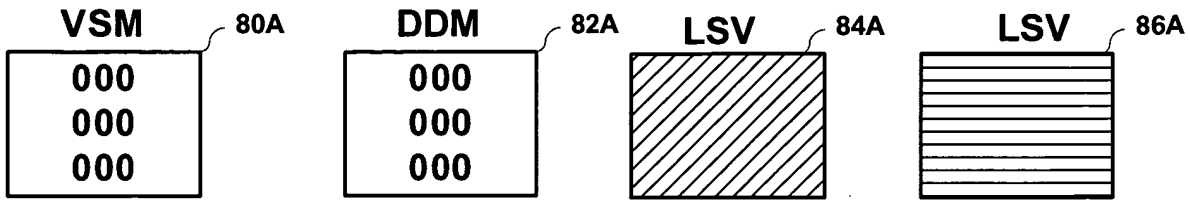

FIG. 9A

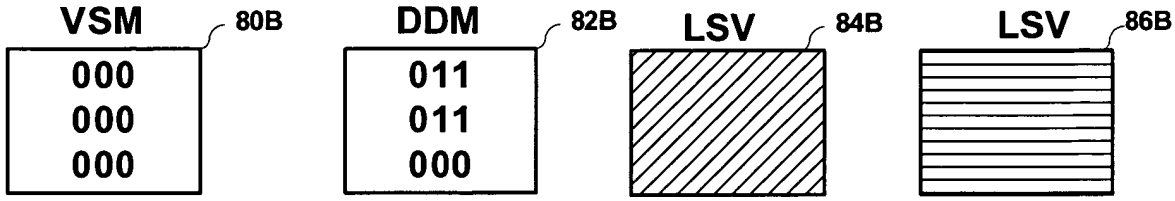

FIG. 9B

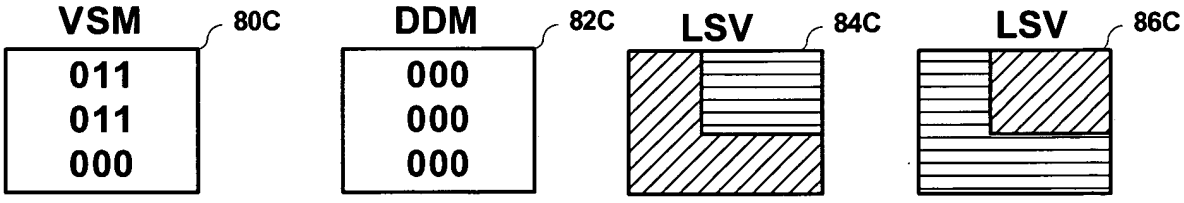

FIG. 9C

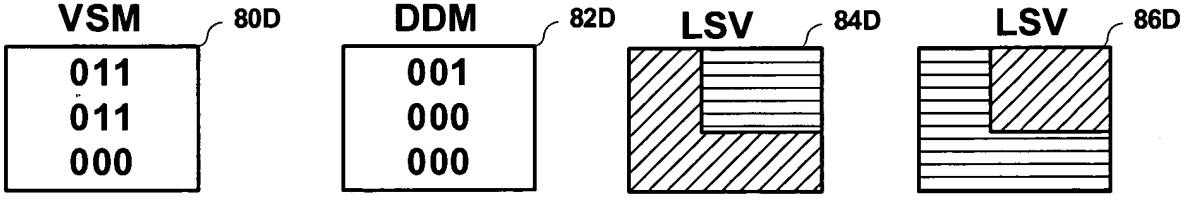

FIG. 9D

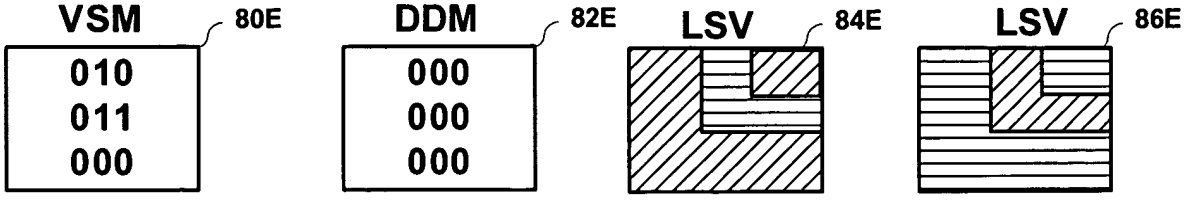

FIG. 9E

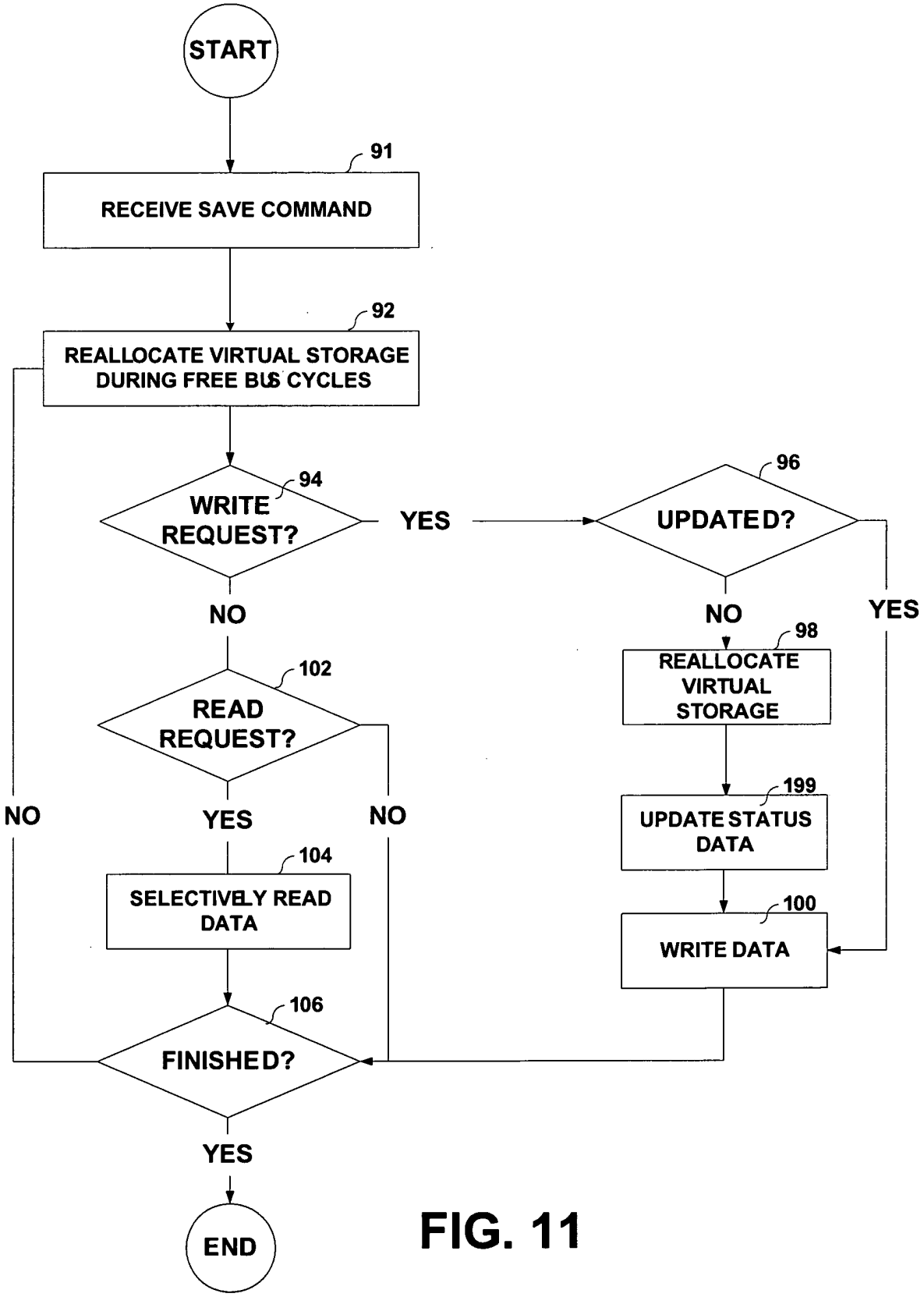
START
91
RECEIVE SAVE COMMAND
92
REALLOCATE VIRTUAL STORAGE DURING FREE BUS CYCLES
94
WRITE REQUEST?
YES
NO
96
UPDATED?
NO
YES
98
REALLOCATE VIRTUAL STORAGE
199
UPDATE STATUS DATA
100
WRITE DATA
102
READ REQUEST?
NO
YES
NO
104
SELECTIVELY READ DATA
106
FINISHED?
NO
YES
END

FIG. 11

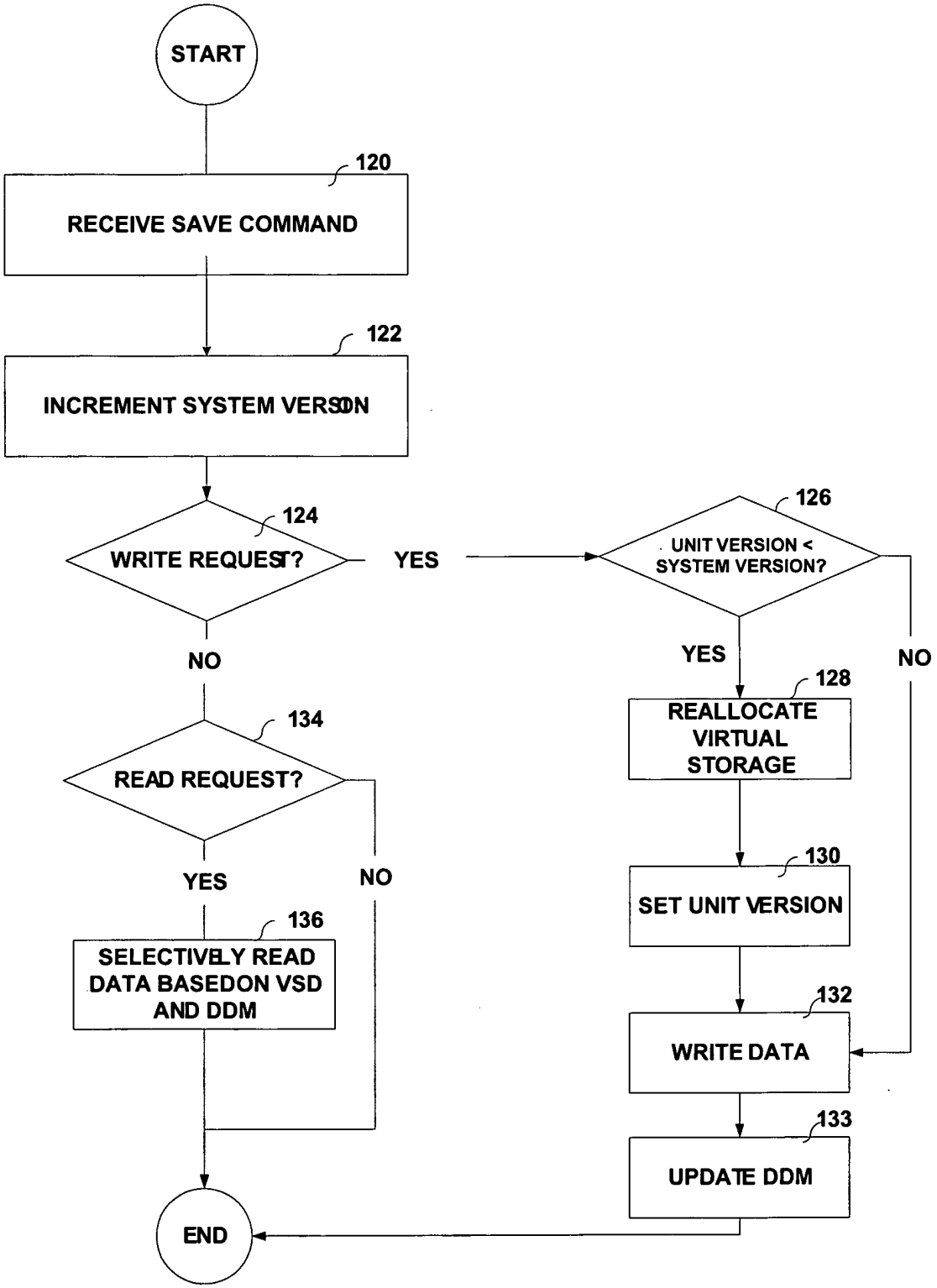
START
120
RECEIVE SAVE COMMAND
122
INCREMENT SYSTEM VERSION
124
WRITE REQUEST?
YES
NO
126
UNIT VERSION < SYSTEM VERSION?
YES
NO
128
REALLOCATE VIRTUAL STORAGE
130
SET UNIT VERSION
132
WRITE DATA
133
UPDATE DDM
134
READ REQUEST?
YES
NO
136
SELECTIVELY READ DATA BASEDON VSD AND DDM
END

FIG. 13

APPLICANT: GASTON R. BIESSENER ET AL.
TITLE: DATA BACKUP AND RESTORATION USING DYNAMIC VIRTUAL STORAGE
ATTORNEY/AGENT: KENT J. SIEFFERT
REG. NO. 41,312 TELEPHONE: 651.735.1100
DOCKET NO.: 1009-003US01 SHEET 10 OF 10

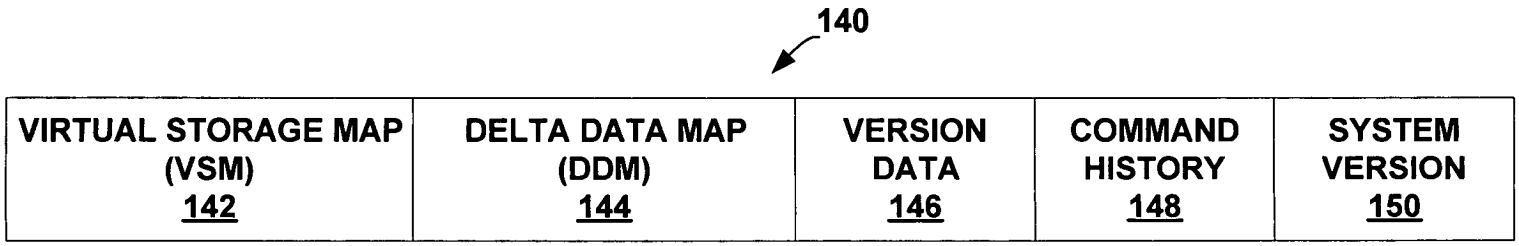

FIG. 14